Claims:

1. A cleaning and/or treatment device comprising a clean solution tank, a dirty solution tank, and a movable cleaner head, which cleaner head comprises at least one solution supply opening for supplying clean solution to a surface, said solution supply opening being in solution communication with said clean solution tank, and at least one solution recovery opening for recovering dirty solution from a surface, said solution recovery opening being in solution communication with said dirty solution tank, said cleaning device comprising means for supplying solution from said clean solution tank through said supply opening and suction means for recovering solution through said recovery opening to said dirty solution tank, said cleaning device further comprising a filter unit for cleaning dirt from said dirty solution and means for recirculating said cleaned solution to said clean solution tank, wherein said filter unit comprises at least one cross-flow filter, said cross-flow filter preferably being a membrane filter.

2. A device according to claim 1, wherein the device is adapted to supply solution from said clean solution tank through said supply opening by means of gravity or by means of a pump.

3. A device according to claim 1 or 2, wherein said membrane filter comprises a membrane packed in a flat, spiral wound or tubular configuration, preferably a tubular or hollow fibre type configuration.

4. A device according to any of the claims 1, 2 or 3, wherein said membrane filter comprises a membrane having a pore size between 10 - 10,000 kD.

5. A device according to any of the claims 1, 2 or 3, wherein said membrane filter comprises a membrane having a pore size between 0.001 - 5 µm.

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6. A device according to any of the claims 1-5, wherein said membrane filter comprises a membrane made of one or more materials selected from polymeric materials, ceramic materials, and metals.

7. A device according to any of the claims 1-6, wherein said filter unit further comprises a coarse screen unit for precleaning the dirty solution before it enters the membrane filter.

8. A device according to claim 7, wherein said coarse screen unit comprises one or more screens having a mesh width in the range 50 - 2,000 µm.

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9. A device according to claim 7 or 8, wherein said coarse screen unit comprises multiple screens arranged in a sandwich structure.

10. A device according to any of the claims 1 -9, further comprising a pumping means for pumping clean solution from the clean solution tank in backflow through the filter unit.

11. A device according to claim 10, further comprising a control unit for starting and stopping said pumping means for pumping clean solution from the clean solution tank in backflow through the filter unit.

12. A cleaning and/or treatment device in combination with a filtering station, said cleaning device comprising a clean solution tank, a dirty solution tank, and a movable cleaner head, which cleaner head comprises at

least one solution supply opening for supplying clean solution to a surface, said solution supply opening being in solution communication with said clean solution tank, and at least one solution recovery opening for recovering dirty solution from a surface, said solution recovery opening being in solution communication with said dirty solution tank, said cleaning device comprising means for supplying solution from said clean solution tank through said supply opening and suction means for recovering solution through said recovery opening to said dirty solution tank, said cleaning device further comprising a first connection pipe adapted to be connected to an inlet pipe on the filtering station for providing a solution communication from said dirty solution tank to said filtering station, and a second connection pipe adapted to be connected to an outlet pipe on the filtering station for providing a solution communication from said filtering station to said clean solution tank, said filtering station comprising a filter unit for cleaning dirt from said dirty solution and means for recirculating said cleaned solution to said clean solution tank, wherein said filter unit comprises at least one cross-flow filter, said cross-flow filter preferably being a membrane filter.

13. A device in combination with a filtering station according to claim 12, wherein the device is adapted to supply solution from said clean solution tank through said supply opening by means of gravity or by means of a pump.

14. A device in combination with a filtering station according to claim 12 or 13, wherein said membrane filter comprises a membrane packed in a flat, spiral wound or tubular configuration, preferably a tubular or hollow fibre type configuration.

15. A device in combination with a filtering station according to any of the claims 12, 13 or 14, wherein said membrane filter comprises a membrane having a pore size between 10 - 10,000 kD.

16. A device in combination with a filtering station according to any of the claims 12, 13 or 14, wherein said membrane filter comprises a membrane having a pore size between 0.001 - 5 µm.

17. A device in combination with a filtering station according to any of the claims 12-16, wherein said membrane filter comprises a membrane made of one or more materials selected from polymeric materials, ceramic materials, and metals.

18. A device in combination with a filtering station according to any of the claims 12-17, wherein said filter unit further comprises a coarse screen unit for precleaning the dirty solution before it enters the membrane filter.

19. A device in combination with a filtering station according to claim 18, wherein said coarse screen unit comprises one or more screens having a mesh width in the range 50 - 2,000 µm.

20. A device in combination with a filtering station according to claim 18 or 19, wherein said coarse screen unit comprises multiple screens arranged in a sandwich structure.

21. A device in combination with a filtering station according to any of the claims 1-20, further comprising a

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pumping means for pumping clean solution from the clean solution tank in backflow through the filter unit.

22. A device in combination with a filtering station according to claim 21, further comprising a control unit for starting and stopping said pumping means for pumping clean solution from the clean solution tank in backflow through the filter unit.

23. A process of recycling solution containing water and detergent and/or treatment chemicals in a cleaning and/or treatment device comprising a clean solution tank, a dirty solution tank, and a movable cleaner head, which cleaner head comprises at least one solution supply opening for supplying clean solution to a surface, said solution supply opening being in solution communication with said clean solution tank, and at least one solution recovery opening for recovering dirty solution from a surface, said solution recovery opening being in solution communication with said dirty solution tank, said cleaning and/or treatment device comprising pumping means for supplying solution from said clean solution tank through said supply opening and suction means for recovering solution through said recovery opening to said dirty solution tank, said process comprising the steps of transporting the dirty solution from the dirty solution tank through a filter unit for cleaning dirt from said dirty solution and recirculating the cleaned solution to the clean solution tank, wherein said filter unit comprises at least one cross-flow filter, said cross-flow filter preferably being a membrane filter.

24. A process according to claim 23, solution from said clean solution tank is supplied through said supply opening by means of gravity or by means of a pump.

25. A process according to claim 23 or 24, wherein said membrane filter comprises a membrane packed in a flat, spiral wound or tubular configuration, preferably a tubular or hollow fibre type configuration.

26. A process according to any of the claims 23, 24 or 25, wherein said membrane filter comprises a membrane having a pore size between 10 - 10,000 kD.

27. A process according to any of the claims 23, 24 or 25, wherein said membrane filter comprises a membrane having a pore size between 0.001 - 5 µm.

28. A process according to any of the claims 23-27, wherein said membrane filter comprises a membrane made of one or more materials selected from polymeric materials, ceramic materials, and metals.

29. A process according to any of the claims 23-28, wherein said filter unit further comprises a coarse screen unit for precleaning the dirty solution before it enters the membrane filter.

30. A process according to claim 29, wherein said coarse screen unit comprises one or more screens having a mesh width in the range 50 - 2,000 µm.

31. A process according to claim 29 or 30, wherein said coarse screen unit comprises multiple screens arranged in a sandwich structure.

32. A process according to any of the claims 23-31, further comprising at least one step of pumping clean solution from the clean solution tank in backflow through the filter unit for cleaning said filter unit.

33. A process according to claim 32, wherein the step of pumping clean solution from the clean solution tank in backflow through the filter unit is performed at regular intervals, preferably from 1 to 10 times per minute.

34. A process according to claim 32 or 33, wherein each step of pumping clean solution from the clean solution tank in backflow through the filter unit has a duration of from 0.5 to 10 seconds, preferably 1 to 3 seconds.

35. A process according to any of the claims 32, 33 or 34, wherein the back-flush procedure of pumping clean solution from the clean solution tank in backflow through the filter unit takes 0.5 - 30 seconds per minute.

36. A process according to any of the claims 32-35, wherein the back-flush procedure of pumping clean solution from the clean solution tank in backflow through the filter unit is controlled by an automatic control unit.

37. A process according to any of the claims 23-36, wherein clean solution is recirculated to the clean solution tank at a flow of from 0.1 to 1,000 l/hr.

38. A process according to any of the claims 23-37, wherein the solution is a detergent solution having a detergent concentration in the range 0.001 - 25 % by weight.